excitation of the sample molecule from the first electronic excited state to the ground state by irradiating the pump light and the erase light through the overlap component; and

a spatial filter located on an optical path of the erase light to be emitted from said erase light source, said spatial filter including a condenser lens, a collimate lens, and a pinhole located between said condenser lens and said collimate lens, wherein said condenser lens, said collimate lens, and said pinhole are arranged so as to condense the erase light into said pinhole, to collimate the erase light having passed through said pinhole into a parallel beam, and to suppress wavefront disturbance of the erase light for producing a first-order Bessel beam from the erase light.

75. The double-resonance absorption microscope of claim 74, further comprising a phase modulation element for providing the first-order Bessel beam produced by the spatial filter with a phase difference of π around an optical axis of the first-order Bessel beam.

76. The double-resonance absorption microscope of claim 74, further comprising a phase modulation element for providing the erase light having passed through said pinhole with a phase difference of π around an optical axis of the erase light

77. The double-resonance absorption microscope of claim 76, wherein said phase modulation element comprises a substrate transparent and optically flat with respect to the erase light, and comprises an optical thin film evaporated on said substrate such that said optical thin film has a thickness distribution for providing the erase light with the phase difference of π around the optical axis of the erase light.

78. The double-resonance absorption microscope of claim 76, wherein said phase modulation element comprises a substrate transparent and optically flat with respect to the erase light, said substrate being etched so as to be operable to provide the erase light with the phase difference of π around the optical axis of the erase light.

79. The double-resonance absorption microscope of claim 78, wherein said erase light source is operable to emit erase light having a pulse width wider than a pulse width of the pump light, said pump light source and said erase light source being operable to emit pump light and erase light, respectively, such that an irradiation duration of the pump light completely overlaps an irradiation duration of the erase light.

80. The double-resonance absorption microscope of claim 79, further comprising a pulse width controller for widening the pulse width of the erase light so that the pulse width of the erase light is wider than the pulse width of the pump light.